

## CASE FOR A PRESS-THROUGH PACKAGE

### CROSS REFERENCE TO RELATED APPLICATION

5           This application claims priority from Japanese Patent Application No. 2003-094001, which is incorporated herein by reference.

### BACKGROUND OF THE INVENTION

#### 10    1. Field of the Invention

          The present invention relates to a case for a press-through package that is commonly used as a package for enclosing medication, pills or any other solid medicines in a pharmaceutical packaging industry.

#### 2. Related Art

15           As described in Japanese Patent Application Laid-open No. Hei-10-59415, a conventional case for a press-through package (hereinafter simply referred to a PTP) or blister package, as illustrated in FIG. 7, is made up of a sheet that is folded into two leaves 2a, 3a, thereby providing therebetween a space for a PTP 4a. The case is held in a folded state with the PTP 4a therein. The first leave 2a has  
20   accommodation holes 23 for accommodation of flexible blisters or bubbles 6c (hereinafter referred only as blisters 6c) formed on a sheet made of typically a transparent plastic material of the PTP 4a, each blister forming separate compartment for one or more pills, while the second leave 3a has take-out holes 24 located corresponding to the accommodation holes 23 or the blisters 6c, through  
25   which the pills are pressed to the outside. Precautions, descriptions, medication administration records or other information are printed on the surface of each leave 2a, 3a so as to allow a patient, doctor or pharmacist to obtain the relevant

information in a reliable manner.

The description hereinafter will be made by taking for example the case where each blister contains one pill. Accordingly, when referring to the position of each blister, the position as referred also represents the position of each pill  
5 contained therein, and vice versa. The drawings are also illustrated in the same manner as the description.

When each pill is taken out from each corresponding blister 6c of the PTP 4a, a pressure is applied onto the blister 6c from the first leaf side, thereby pressing the pill outward, which pressure causes rupture of an aluminum foil or  
10 paper sheet, which has been attached to the sheet with the blisters formed therein, and hence pressing the pill out from the blister 6c.

The PTP case of the above type easily allows pills to be taken out only by application of pressure onto the blisters 6c. This may pose a serious problem that a child or careless adult is highly likely to accidentally swallow them if the PTP  
15 case is stored or left in a place easy to access for them.

Another problem is accidental rupture of a foil or sheet of a PTP upon unintentional pressure during the transportation, resulting in exposure of the pills to the outside or falling out of the pills from the PTP through the take-out holes 24 located corresponding to the blisters with the pills therein.

20 Accordingly, it is an object of the present invention to provide a PTP case that is designed to limit the access to medicines or pills contained in a PTP or the like and hence make a child hard to access to them, thereby contributing to proper administration and safe storage.

## 25 SUMMARY OF THE INVENTION

According to the present invention, there is provided a PTP case, which

includes a case body having first and second sheet members that are overlapped to each other so as to place a PTP therebetween. The PTP has at least one blister each containing one or more pills. The first sheet member has at least one elongated hole, through which the at least one blister protrudes to the outside, so that the at least one blister is pressed along the at least one elongated hole, thereby sliding PTP along the first and second sheet members. The second sheet member has at least one take-out portion located facing to the at least one elongated hole at such a position as to be matched in position to the at least one blister of the PTP when the PTP has been slid to a predetermined point.

10           The thus arranged PTP case can be set so as to prevent the at least one blister from being matched in position to the at least one take-out portion by sliding the PTP in the first and second sheet members along the at least one elongated hole, and thus make a child hard to access to a pill inside of the blister. When a pill inside of the blister is to be taken out, the PTP is slid to a  
15           predetermined point at which the at least one blister is matched in position to the at least one take-out portion, and then a pressure is applied onto the blister, thereby pressing the pill out of the blister through the at least one take-out portion.

          Unlike a conventional PTP case, in which a PTP is fixed in position  
20           therein with a take-out portion matched in position to a blister, the PTP case of the present invention can securely prevent a child or careless adult from taking out pills from the PTP and accidentally swallowing the same, and hence allow a parent or responsible person to keep the medicine or pills in secure storage under control.

25           Also, the possibility of the unintentional falling out of the pills from the PTP during the transportation due to pressure applied on the blister can be reduced.

The PTP case may further include a cover attached to the case body in such a manner as to be able to be pivotally moved about a certain point so that the cover is opened away from the case body and closed toward the same. The opening and closing motion of the cover is associated with the sliding motion of the PTP. This arrangement allows the PTP case to be set so that when the cover has been opened, the blister of the PTP is not matched in position to the take-out portion. Accordingly, the same effect as above, that is, an effect of preventing accidental swallowing of pills by a child can be produced.

The PTP case having the above arrangement may further include a connection strip that extends outwardly from the cover. The connection strip has a distal end attached to the PTP, and the connection strip is designed so as to be able to be curved or bent according to the opening and closing motion of the cover. The opening and closing motion of the cover is associated with the sliding motion of the PTP via the connection strip. When the cover is closed, the PTP is slid to some extent, but after a certain point, the connection strip is curved or bent so that only the closing motion of the cover is solely proceeded. Accordingly, this connection strip allows the PTP case to be set so that the blister and the take-out portion are not matched in position to each other within a sliding range of the PTP along with the opening and closing action of the cover, while they are matched to each other when the PTP is slid with the cover held slightly closed. This arrangement contributes to ease of taking-out of the pills, as well as prevention of accidental swallowing of the pills by a child.

The PTP case may further include a checking means for checking whether the at least one blister of the PTP has been matched in position to the at least one take-out portion. Accordingly, the PTP can be slid upon checking through the checking means to a predetermined point at which the blister is matched in position to the take-out portion. This also contributes to ease of taking-out of the

pills.

The at least one take-out portion may be defined by perforation so as to be entirely or partially detached from the second sheet member upon receiving pressure applied onto the at least one blister, thereby allowing the one or more pills in each of the at least one blister to be pressed out through the at least one take-out portion.

### BRIEF DESCRIPTION OF THE DRAWINGS

The above, and other objects, features and advantages of the present invention will become apparent from the detailed description thereof in conjunction with the accompanying drawings wherein.

FIG. 1 is a front view of a PTP case according to a first embodiment of the present invention.

FIG. 2 is a development view of the PTP case of FIG. 1.

FIG. 3 is a front view of the PTP case according to a second embodiment of the present invention.

FIG. 4 is a development view of the PTP case of FIG. 4.

FIG. 5 is a front view of the PTP case with a PTP bonded to a connection strip.

FIG. 6 is a side view illustrating the PTP case with a pill pressed out therefrom.

FIG. 7 is a perspective view of a conventional PTP case.

### DESCRIPTION OF THE PREFERRED EMBODIMENTS

Embodiments of the case for a PTP (hereinafter referred to a PTP case)

according to the present invention will be herein described with reference to the drawings attached hereto.

(First Embodiment)

As illustrated in FIG. 1, a case body 1 is made of a thick sheet material or the like and has a rectangular shape as viewed from the front side. The case body 1 is made up of two sheet members 2, 3 (first and second sheet members) with peripheral edges bonded together, as illustrated in a development view of FIG. 2. A PTP 4 is placed between the two sheet members 2, 3. Elongated holes 5 are formed in the first sheet member 2 with a given distance from each other so as to allow blisters of the PTP 4, each containing one pill 6, to protrude to the outside through the elongated holes 5 and the PTP 4 to be slidable in the case body 1 by applying pressure onto the blisters. Take-out portions 7 are formed in the second sheet member 3 corresponding in position or face to the elongated holes 5, in which each take-out portion 7 is entirely or partially detachable from the second sheet member 3 by perforation 8. A cover 9 is pivotally movably attached to an end of the case body 1 via a hinge 10. The cover 9 is also made up of two sheet members 11, 12 with their peripheral edges bonded together, as illustrated in FIG. 2.

The PTP case of this embodiment is provided with two types of checking means for allowing a person concerned to recognize from the outside of the PTP case the fact that each blister with the pill 6 therein has been matched in position to each corresponding take-out position 7.

A first type of the checking means is achieved by respectively providing elongated checking windows 13 on the opposite sides (upper and lower sides in FIG. 1) of the first sheet member 2, positioning the PTP 4 with its opposite ends (upper and lower ends in FIG. 1) each extending through substantially the center of each corresponding checking window 13 in the lengthwise direction thereof (a horizontal direction in FIG. 1), and providing marks 14, which are visible through

the windows 13, at such positions of the PTP 4 as to allow the blisters or pills 6 therein to be respectively positioned on or above the corresponding take-out portions 7 when the marks 14 have been matched in position to the checking windows 13.

5           A second type of checking means is achieved by forming protrusions 15 at such positions of the opposite sides (upper and lower sides in FIG. 2) of each elongated hole 5 as to face each other, each pair forming a narrow section of each elongated hole 5, so that the blisters or pills 6 therein to be respectively matched in position to the corresponding take-out portions 7 when the blisters or pills 6 are  
10           respectively positioned in the narrow sections each defined between each corresponding pair of opposite protrusions 15 in each elongated hole 5.

          The thus arranged PTP case is usually set so as to prevent a child or careless adult from unintentionally taking out the pills 6 from the PTP 4. Specifically, the PTP 4 is slid in the horizontal direction by pressing the blisters so  
15           as to bring the marks 14 out of the checking windows 13, or the blisters or pills 6 therein out of the corresponding narrow sections of the elongated holes 5, each narrow section defined by each corresponding pair of the opposite protrusions 15. This sliding action can be made with reference to any one of the marks 14, blisters (pills 6) or the like, as described above. In either case, the PTP case is designed to  
20           dislocate the blisters or pills 6 from the corresponding take-out portions 7 so that the pills 6 cannot be pressed out of the blisters of the PTP 4 since the other portion of the second sheet member 3 is strong enough against the pressure.

          Thus, it is possible to securely prevent a child or careless adult from taking out the pills 6 from the PTP 4 and accidentally swallowing the same, and  
25           hence allow a parent or responsible person to keep the medicine or pills in secure storage under control.

          When each pill 6 is to be intentionally taken out from the PTP 4 by a

patient or the like, the PTP 4 and hence the blisters or pills 6 are slid in such a manner as to match the marks 14 of the PTP 4 in position to the checking windows 13, or bring the blisters or pills 6 into the corresponding narrow sections each defined between each corresponding pair of the opposite protrusions 15 in each elongated hole 5. Thus, the blisters or the pills 6 therein are matched in position to the corresponding take-out portions 7. In this position, a blister is pressed with finger, thereby rupturing an aluminum foil or paper sheet attached to a sheet made of typically a plastic material with the bubbles or blisters formed therein. The pressing force further causes each corresponding take-out portion 7 to be torn out along the perforation and hence is opened to the outside, through which the pill 6 is taken out.

The arrangement requiring a pressing force strong enough to tear out each take-out portion 7 along the perforation may be able to make a child give up his or her attempt to take out the pill 6 by himself or herself. Hence, accidental swallowing of pills by a child or careless person can be prevented and a secured administration by a parent or responsible person can also be achieved. Also, the possibility of the unintentional falling out of the pills from the PTP 4 during the transportation can be reduced.

When the PTP 4 is to be set in the case body 1, the elongated holes 5 of the case body 1 serve as guiding means for setting the blisters or pills 6 of the PTP 4 at predetermined positions in the case body 1. Accordingly, a series of assembling works can easily and efficiently be carried out, thus providing an advantage in manufacturing process.

In this embodiment, the PTP case is made up of the case body 1 and the cover 9. This cover 9 may be omitted according to needs and circumstances.

Also, the positions of the take-out portions 7 as take-out means are not limited to those in this embodiment. For example, each take-out portion 7 may be



formed corresponding to a right hand side end or a left hand side end of each elongated hole 5. The positions of the take-out portions 7 may be varied depending on each application.

According to needs and circumstances, the first and second checking  
5 means may also be omitted.

(Second Embodiment)

According to this embodiment, the PTP 4 is slid in association with opening and closing motion of the cover 9. The description on the identical or corresponding members or parts to those of the first embodiment will be omitted,  
10 while mainly discussing the differences between the two embodiments.

In FIGS. 3-6, the first sheet member 2 has cuts 16 extending inward from an end thereof around a center portion with a predetermined distance from each other. A portion between the cuts 16 are cut away to leave only a tongue 17 therebetween. A first sheet member 11 of the cover 9 has a flap 18 formed with  
15 cuts 19 extending inward from an end thereof. The flap 18 has a fold line 20 along its proximal end. The flap 18 has an extension on its distal end to form a connection strip 21 that has a width slightly smaller than the distance between the opposite cuts 16 of the case body 1. A distal end of the connection strip 21 extends through the cuts 16 and is bonded to an end portion of the PTP 4, as  
20 illustrated in FIG. 5. The connection strip 21 has a fold line 22 formed at such a position thereon as to allow itself to be substantially matched with or aligned with an end of the cover 9, which end serves as a fold line, along which the cover 9 is folded towards the case body 1.

The take-out portions 7 provided in the second sheet member 3 of the case  
25 body 1 each are formed so as not to be matched in position to each corresponding blister or pill 6 when the cover 9 is kept fully opened and closed. In this embodiment, the take-out portions 7 and the blisters of the PTP 4 are matched in

position to each other when blisters 6b located on the right-hand side of FIG. 5 have been moved to the right-hand side end of the elongated holes 5. The length of the connection strip 21 is set so that when the cover 9 is fully opened, the blisters 6b located on the left-hand side of the PTP 4 are moved through the  
5 elongated holes 5 towards the left ends thereof, and when the cover 9 is fully closed, the blisters 6b located on the right-hand side of the PTP 4 each are moved to a proximity of the lengthwise center of a corresponding elongated hole 5. After the blisters 6b have been moved to the proximity of the lengthwise center of the elongated holes 5, the opening and closing motion of the cover 9 does not cause the  
10 sliding of the PTP 4. Accordingly, only the opening and closing motion is solely performed.

According to the thus arranged PTP case of this embodiment, throughout the opening and closing motion, none of the blisters or pills 6 are matched in position to the corresponding take-out portions 7. Therefore, it is possible to  
15 securely prevent a child or careless adult from taking out the pill 6 from the PTP 4 and accidentally swallowing the same, in the same manner as in the first embodiment.

When the pill 6 is to be intentionally taken out from the PTP 4 by a patient or the like, with the cover 9 held slightly open, the PTP 4 is slid with finger  
20 via a blister or blisters so as to move each pill 6 towards the right hand side end of each elongated hole 5. The PTP sheet 4 and the connection strip 21 are then slid along the first and second sheet members 2, 3 of the case body 1, and the flap 18 formed in the cover 9 is pivotally moved about the fold line 20 upon receiving the tension force effected by the sliding action. Thus, the blisters 6b located on the  
25 right-hand side of the PTP 4 can be moved to the right hand side ends of the elongated holes 5. Each blister is pressed from above in a direction as represented by arrow B in FIG. 6 so that the pill 6 therein is pressed out of the

PTP 4.

This pill taking-out operation achievable by several steps makes it much harder for a child or the like to take a pill out of the PTP. As a result, it is possible to more securely prevent accidental swallowing of a pill or medicine by a child or the like and hence allow medicines or pills to be kept in secure storage under control.

When the PTP case is to be held in secure storage, thereby dislocating each blister or pill 6 from each corresponding take-out portion 7, only the full opening action of the cover 9 is enough. When in this opening action, the connection strip 21 is subjected to an upward tension force by the flap 18, but this tension force is absorbed by the tongue 17, which is opened upward upon receiving the tension force. Thus, the cover 9 can be smoothly and fully opened while avoiding rupture of the case body 1.

In the second embodiment, throughout the movement of the cover 9 from the full closed position to the full open position or vice versa, none of the blisters or pills 6 are matched in position to the corresponding take-out portions 7. And, with the cover kept slight open, the pills 6 of the PTP 4 are moved to the right hand side end of each elongated hole 5, thereby allowing the pills 6 are matched in position to the take-out portions 7. Therefore, it is possible to more securely prevent a child or careless adult from taking out the pill from the PTP 4 and accidentally swallowing the same. This may be modified so as to make the blisters or pills 6 match in position to the corresponding take-out portions at a certain angular point of the closing or opening action of the cover 9.

Also, the checking means as described in the first embodiment may be provided in this embodiment.

In each embodiment, the take-out means is in the form of the take-out portion 7 with the perforation 8 formed around the entire circumference thereof.

This perforation defining the take-out portion 7 may be partially formed around the take-out portion 7 such as in U-like shape, a half-circle or the like, as long as the take-out portion can be opened wide enough to allow one or more pills contained in each blister to be pressed out from the blister.

5           The PTP 4 as described in the first and second embodiments has plural blisters each containing one or more pills. This is not essential in the present invention. That is, the PTP 4 to which the present invention is applicable may have only one blister with one ore more pills therein.

10           The length, shape or the like of each elongated hole 5 formed in the first sheet member 2 of the case body 1 may be modified according to the shape or the like of each pill or blister. Also, the case body 1, the cover 9 or the like each may have a varying shape or structure within the intended scope of the present invention.

15           This specification is by no means intended to restrict the present invention to the preferred embodiments set forth therein. Various modifications to the PTP case, as described herein, may be made by those skilled in the art without departing from the spirit and scope of the present invention as defined in the appended claims.